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Before the
**FEDERAL COMMUNICATIONS COMMISSION**
Washington, DC 20554

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| In the matter of | ) | |
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| PETROCOM LICENSE CORPORATION | ) | DA 99-1601 |
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| Amended Petition for Rule Making | ) | |

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# OPPOSITION TO PETITION FOR RULE MAKING

THE WIRELESS COMMUNICATIONS
ASSOCIATION INTERNATIONAL, INC.

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September 10, 1999

No. of Copies rec'd 0+4
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## TABLE OF CONTENTS

## EXECUTIVE SUMMARY

The Wireless Communications Association International, Inc. ("WCA"), which represents Multipoint Distribution Service ("MDS") and Instructional Television Fixed Service ("ITFS") licensees and wireless communications systems with substantial operations along the Gulf of Mexico, opposes the adoption of the rules proposed by PetroCom License Corporation ("PetroCom") to allow the auctioning and use of MDS and ITFS spectrum in the Gulf of Mexico.

The adoption of PetroCom's proposals would undermine more than two decades of licensing of MDS and ITFS facilities along the Gulf coast, as well as the MDS Basic Trading Area ("BTA") auction process, to the detriment of the MDS and ITFS licensees, wireless communications system operators, and consumers. Although PetroCom has been operating developmental MDS stations in the Gulf for years, and has conceded in a report to the Commission that "[t]he Gulf of Mexico provides an unstable environment for RF propagation," PetroCom has failed to provide any evidence that the rules it is proposing will adequately protect land-based operations. Indeed, there is every reason to believe that development of facilities in the Gulf under the rules proposed by PetroCom both would result in significant interference to land-based facilities and would require land-based systems to reduce service to the public in order to protect facilities in the Gulf.

PetroCom has failed to establish that any legitimate public interest would be advanced by risking interference to land-based facilities and a diminution of service to the 16.7 million residents of BTAs bordering the Gulf. Nowhere does PetroCom even allege, much less demonstrate, that there is any demand for service in the Gulf that cannot be met through other radio-based services already licensed to operate in the Gulf. Indeed, in a separate proceeding, an affiliate of PetroCom has represented to the Commission that the Gulf is adequately served by existing licensees and that the licensing of additional service providers would be contrary to the public interest.

Finally, PetroCom has proposed auction rules that are transparently self-serving. Its motive for doing so appears clear – evidence has been presented to the Commission that PetroCom is illegally operating commercial facilities in the Gulf utilizing MDS channels, and must secure a Gulf BTA authorization in order to legitimize its business. If adopted, the auction rules proposed by PetroCom would minimize (if not eliminate) any competition that PetroCom would face from other bidders for permanent Gulf authorizations. Specifically, WCA opposes PetroCom's proposals for setting aside spectrum in the Gulf for small businesses (a proposal that would prevent many of the existing MDS licensees along the coast from bidding), precluding bidding by the Wireless Communications Service and Local Multipoint Distribution Service licensees for the Gulf, or barring partitioning of the Gulf BTA-like area (which would tend to limit the participation of the land-based BTA holders who might want to secure rights to serve bordering areas within the Gulf, but not the entire Gulf). While adoption of these proposals would no doubt advance PetroCom's interests, they would do nothing to advance the public interest.

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## OPPOSITION TO PETITION FOR RULE MAKING

The Wireless Communications Association International, Inc. ("WCA"), by its attorneys and in response to the Commission's August 11, 1999 *Public Notice,* hereby opposes the Amended Petition for Rule Making (the "Amended Petition") filed by PetroCom License Corporation ("PetroCom") proposing rules for the auctioning and use of Multipoint Distribution Service ("MDS") and Instructional Television Fixed Service ("ITFS") spectrum in the Gulf of Mexico.[1/] For the reasons set forth below, WCA believes that adoption of the rules proposed by PetroCom would severely jeopardize the ability of MDS and ITFS-based wireless broadband systems to provide video, voice and data services to the 16.7 million Americans residing in Basic Trading Areas ("BTAs") bordering on the Gulf.

## I. STATEMENT OF INTEREST AND SUMMARY.

WCA is the trade association of the fixed wireless broadband industry. Its membership includes, among others, numerous MDS and ITFS licensees and wireless communications system operators who are, or will soon be, providing a variety of video, voice and/or data

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[1/]See "Pleading Cycle Established for Comments on Amended Petition for Rulemaking to Amend Parts 21 and 74 of the Commission's Rules to Permit Licensing in the Multipoint Distribution Service and Instructional Fixed Service for the Gulf of Mexico," *Public Notice,* DA 99-1601 (rel. Aug. 11, 1999).

services to business and residential consumers near the Gulf coast. As will be demonstrated in detail below, WCA's members, along with untold numbers of existing and potential subscribers to wireless broadband services along the Gulf coast, will be adversely affected if the Commission permits the auctioning and use of MDS and ITFS spectrum in the Gulf under the rules proposed by PetroCom. Thus, WCA has a keen interest in the Commission's handling of the Amended Petition.

Given the high population density along the Gulf of Mexico coast (16.7 million people live within the 21 BTAs bordering the Gulf), it is not surprising that a large number of MDS and ITFS facilities have been deployed or are well-along in the planning stages in Florida, Alabama, Mississippi, Louisiana and Texas near the Gulf coast. For example, Wireless One, Inc. ("Wireless One") is currently providing wireless cable service along the coast to residents of Panama City, FL, Fort Walton, FL, Pensacola, FL, Biloxi, MS, Houma, LA, Bucks, LA, Lake Charles, LA, Lafayette, LA and Freeport, TX and surrounding areas. BellSouth Wireless Cable, Inc. ("BellSouth") is providing wireless cable service to residents in and around New Orleans, LA and Fort Myers, FL. Nucentrix Spectrum Resources, Inc. ("Nucentrix") operates a wireless cable system serving Corpus Christi, TX, and Paradise Cable, Inc. operates a high-speed data service in Sarasota, FL. Several additional systems serving coastal areas are under development. Moreover, the Commission's recent adoption of rules and policies to govern the provision of two-way broadband services over MDS and ITFS spectrum[2/] has already spurred both Sprint

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[2/] *See Amendment of Parts 21 and 74 To Enable Multipoint Distribution Service and Instructional Television Fixed Service Licensees To Engage in Fixed Two-Way Transmissions,* 13 FCC Rcd 19112 (1998) [hereinafter cited as "*MDS/ITFS Two-Way Order*"] *on recon.* FCC 99-178 (rel. July 29, 1999).

Corporation ("Sprint") and MCI WorldCom, Inc. ("MCI") to acquire MDS licensee holders and lessees of MDS and ITFS spectrum in the Gulf region for the provision of a wide variety of broadband services.[3/]

As is more fully explained below, the adoption of PetroCom's proposals is likely to result in interference to the reception of MDS/ITFS services by subscribers to wireless communications systems along the Gulf of Mexico, and could force existing licensees and BTA authorization holders to reduce service to the public in order to avoid interference to future Gulf of Mexico authorization holders. Given that MDS/ITFS channels are currently being used in coastal areas to provide effective competition to the cable industry and to provide high speed Internet access, and offer perhaps the most promising vehicle for providing competitive wireless local loop services, the Commission must take great care in assuring that usage of MDS and ITFS spectrum in the Gulf not jeopardize land-based services. This is particularly true in light of PetroCom's glaring failure to demonstrate that any demand exists in the Gulf for MDS/ITFS services that cannot be provided over spectrum allocated to other services.

WCA must stress that it is not unalterably opposed to the use of the MDS and ITFS spectrum in the Gulf of Mexico. To the contrary, WCA would support the adoption of rules permitting the licensing of MDS and ITFS spectrum in the Gulf if a legitimate demand for such

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[3/] *See* "Sprint, MCI WorldCom Continue MMDS Spectrum Buying Spree," *Private Cable & Wireless Cable* 8-9 (Sept. 1999)(describing MCI's acquisition of Wireless One, Inc. and Sprint's acquisitions of Videotron USA, among others); Paul Kagan Associates, *Wireless Cable Investor* 5 (July 13, 1999) (reporting sale of Wireless Cable of Florida, Inc.'s wireless cable properties to Sprint); "MCIW's Wireless Cable Plans Cover Wholesaling, Small Business," *Communications Daily* 2-3 (July 14, 1999)(reporting on MCI's announcement of its purchase of PrimeOne Tele-TV).

services were established and if rules were crafted that provided both adequate protection to existing MDS and ITFS license holders and a fair system for auctioning the right to serve the Gulf. The problem here, however, is that, like the predecessor 1996 petition for rulemaking (the "1996 Petition") advanced by PetroCom's corporate affiliate Gulf Coast MDS Company ("Gulf Coast MDS"), the instant PetroCom proposal falls far short on all counts. The 1996 Petition was roundly criticized because it would have jeopardized service to land-based population centers in order to provide a service to the oil and gas industry for which no demand had been established.[4/] The Amended Petition not only fails to adequately address those concerns, but compounds the well-chronicled shortcomings of the 1996 Petition by now proposing to auction ITFS, as well as MDS spectrum, for commercial usage and by proposing auction and licensing rules that have been transparently crafted to give PetroCom – which appears to be operating a developmental system in the Gulf illegally[5/] – an unwarranted advantage in any auction.

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[4/] *See* Opposition of Wireless One, Inc. and Heartland Wireless Communications, Inc. to Petition for Rule Making, DA 96-1721 (filed Nov. 18, 1996)[hereinafter cited as "Wireless One Opposition"]; Opposition of Pacific Telesis Enterprises to Petition for Rulemaking, DA 96-1721 (filed Nov. 15, 1996); Letter from Paul J. Sinderbrand to William F. Caton, DA 96-1721 (filed Dec. 17, 1996); Letter from Paul J. Sinderbrand to William F. Caton, DA 96-1721, at 2 (filed Dec. 30, 1996); Reply Comments of Wireless One, Inc. and Heartland Wireless Communications, Inc., WT Docket No. 97-112 (filed Aug. 4, 1997).

[5/] *See* Renewed Motion for Cancellation of Rig Telephones *et al.* FCC File No. 50311-CM-P-97 (filed Aug. 13, 1999); Motion for Issuance of Show Cause Order of Rig Telephones *et al.* FCC File No. 50311-CM-P-97 (filed Aug. 13, 1999); and Motion to Compel Disclosure of Developmental Data of Rig Telephones *et al.* FCC File No. 50311-CM-P-97 (filed Aug. 13, 1999).

## II. DISCUSSION.

### *A. PetroCom Has Failed To Demonstrate Any Demand For MDS/ITFS Facilities In The Gulf of Mexico That Cannot Be Met With Spectrum That Is Already Licensed.*

As the Commission considers the Amended Petition and the potential for interference to land-based systems that would be caused by the licensing of MDS and ITFS spectrum in the Gulf for the benefit of the oil and gas industry, it should note that PetroCom has failed to address one of the most stinging criticisms leveled against the 1996 Petition. Like Gulf Coast MDS before,[6/] PetroCom has failed to establish that there is a demand for services in the Gulf of Mexico that cannot be met through other available spectrum -- spectrum that can be deployed without jeopardizing the provision of MDS/ITFS-based wireless communications service to the 16.7 million Americans who reside along the Gulf of Mexico coast.[7/] PetroCom's failure to establish a demand for MDS/ITFS use in the Gulf is surprising. Less than two months before filing the Amended Petition an affiliate of PetroCom excoriated the Commission's proposal to license usage of the 47 GHz band in the Gulf, contending that "Commission precedent dictates that before additional CMRS services are licensed in the Gulf, a demand for the service must be

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[6/] *See* Wireless One Opposition, at 16-17.

[7/] While the Amended Petition does claim that PetroCom's developmental operations "have demonstrated that a demand exists for WLL services in the Gulf," that is a far cry from establishing that the demand can only be met through MDS and ITFS spectrum. *See* Amended Petition, at 8. Moreover, some of PetroCom's developmental facilities have inexplicably been allowed by the Commission to operate within Wireless One's BTAs and thus commercial usage of those facilities is meaningless as to whether a Gulf BTA-like area should be established. Because the developmental reports that PetroCom has submitted to date are so sketchy, one simply cannot determine whether any of the service demand cited by PetroCom is outside the areas that can be served by existing licensees.

shown."[8/] Why the same should not hold true at 2 GHz is a mystery.

PetroCom's failure to demonstrate that there is a unique need for MDS/ITFS facilities in the Gulf that cannot be met with other spectrum is understandable, however, since no such demand exists. PetroCom concedes in the Amended Petition that "[f]ixed wireless local loop services in the Gulf can be provided over frequencies licensed in the Wireless Communications Service ("WCS") and Local Multipoint Distribution Service ("LMDS") . . .."[9/] And, of course, in addition to that spectrum, the oil and gas industry has access to a myriad of other spectrum alternatives to meet their needs, including satellite services, the cellular telephone service (including spectrum licensed in the Gulf to an affiliate of PetroCom), the Offshore Radiotelephone Service, and the private and common carrier point-to-point microwave services. Indeed, while PetroCom's Amended Petition repeatedly asserts that there are no incumbent MDS and ITFS licensees in the Gulf, the fact is that incumbent MDS and ITFS stations based on land have protected service areas that can extend as far as 35 miles into the Gulf, while MDS BTA authorization holders have purchased the right to provide video, voice and data services to oil and gas platforms and other users many miles into the Gulf.[10/] Indeed, the record developed in

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[8/]Comments of Petroleum Communications, Inc., WT Docket 98-136, ET Docket No. 94-124, at 5 (filed Sept. 17, 1998).

[9/]Amended Petition, at 7-8.

[10/] PetroCom contends that MDS BTA holders have secured the right to serve 3 marine leagues (9 nautical miles) from the coastlines of Texas and Florida, and 3 geographic miles from the coastline of Alabama, Mississippi and Louisiana based on the applicable state laws establishing county boundaries. *See* Amended Petition *id.* at 4 n. 6. In fact, current BTA authorization holders are entitled to serve far greater areas than suggested by PetroCom. For example, Louisiana's Gulfward Parish boundaries extend a distance of 3 marine leagues (9 nautical miles) from the Louisiana coast. *See* La. Rev. Stat. §§ 49.1, 49.6 (1997). While

response to the 1996 Petition demonstrates that service is being provided in the Gulf by licensed land-based MDS and ITFS facilities.[11/] PetroCom does not even allege, much less establish, that these other spectrum alternatives are incapable of meeting whatever demand exists for communications services in the Gulf.

PetroCom's failure to present evidence of a demand that cannot be met through other spectrum is no accident, but reflects PetroCom's recognition that no such demand exists. It is telling that the Amended Petition nowhere mentions that in 1997 (after Gulf Coast MDS had started this proceeding) an affiliate of PetroCom submitted to the Commission in WT Docket No. 97-112 a detailed report on "Competition in Wireless Telecom Services in the Gulf of Mexico" by Dr. Larry F. Darby which concludes that "we have found no clear basis, in either economic theory or in the facts available to us at this time, for concluding that an increase in the

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PetroCom cites *United States v. Louisiana*, 470 U.S. 93, 95 (1984) for the proposition that Louisiana county lines extend only three geographic miles into the Gulf, that is not correct – that case only addresses the boundaries of Alabama and Mississippi for purposes of the Submerged Lands Act and does not speak to Louisiana's claim of a historic gulfward boundary of 3 marine leagues. Moreover, while PetroCom is correct that Mississippi and Alabama limit county boundaries to three geographic miles from their coastlines, the laws of those states provide that county jurisdictions include islands within six leagues of the Gulf shore and that the county boundary is three geographic miles from the southern coasts of those states' barrier islands. *See* Ala. Const. § 37; Ala. Code § 41-2-1; Miss. Code Ann. §§ 3-3-5, 19-1-47, 19-1-49. Mobile County in Alabama includes Dauphin Island, which is understood to be the southern boundary of the state. *See Bosarge v. State*, 121 So. 427 (Ala. 1928). Similarly, Harrison County in Mississippi includes Ship Island and Cat Island, and Jackson County includes Horn Island and Petit Bois Island. Thus, for example, the right to provide MDS service within the eighty mile by ten mile area of the Mississippi Sound has already been auctioned. *See United States v. Louisiana*, 470 U.S. 93, 95 (1984).

[11/] *See* Letter from Paul J. Sinderbrand, counsel to Wireless One, Inc., to William F. Caton, FCC Secretary, DA 96-1721 (filed Dec. 30, 1996); Letter from Paul J. Sinderbrand to William F. Caton, DA 96-1721 (filed Dec. 17, 1996).

number of wireless licensees and potential entrants will lead to substantial improvement in market performance or user welfare among wireless telecommunications services users in the GMSA."[12/] Couple this 1997 admission that no new wireless licenses are required to meet demand in the Gulf with the Amended Petition's concessions that "[u]nlike land markets, the demand for wireless services is not increasing at an exponential rate in the Gulf," and that this "situation is not expected to change for the foreseeable future,"[13/]and one can only wonder as to what public interest will be advanced by authorizing MDS and ITFS facilities in the Gulf that jeopardize land-based service.

In short, the Amended Petition has failed to demonstrate that licensing of MDS and ITFS spectrum in the Gulf of Mexico would be of any benefit to the oil and gas industry, much less of such great benefit that video, voice and data services to the over 16.7 million people residing in the BTAs that border the Gulf of Mexico should be jeopardized. And, as is demonstrated below, adoption of the licensing scheme advanced by PetroCom would most certainly jeopardize existing and planned video, voice and data land-based services.

*B. Licensing Of MDS And ITFS Spectrum In The Gulf As Proposed By PetroCom Would Jeopardize Land-Based Video, Voice and Data Services Along the Gulf Coast.*

As noted above, WCA's objection to the proposals being advanced by PetroCom is grounded in a desire to assure that the licensing of facilities in the Gulf not jeopardize the ability

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[12/]*See* Darby, "Competition in Wireless Telecom Services in the Gulf of Mexico," at 3, *submitted with* Comments of Petroleum Communications, Inc., WT Docket No. 97-112 (filed July 2, 1997).

[13/]Amended Petition, at 8.

of land-based MDS and ITFS licensees to provide a variety of wireless video, voice and data services to consumers. Particularly now that the Commission has just completed a thirty-month long proceeding to develop rules to permit the routine licensing of digital, two-way, cellularized MDS and ITFS systems,[14/] it would be unthinkable for the Commission to turn around and effectively deny land-based licensees near the Gulf coast the ability to provide consumers the innovative broadband services possible under the new rules. Yet that is precisely what will happen if the Commission adopts the proposals advanced by PetroCom.

1. Licensing Of MDS And ITFS Spectrum As Proposed By PetroCom Would Adversely Impact The Ability Of Incumbent MDS and ITFS Licensees To Provide Service Within Their Protected Service Areas Near The Gulf.

As the Commission considers PetroCom's proposal, it must recognize that adoption of the interference protection rules proposed in the Amended Petition will not adequately protect either existing MDS and ITFS facilities near the coast or the variety of new facilities that incumbent MDS and ITFS licensees and BTA authorization holders are planning to deploy under the new MM Docket No. 97-217 rules.

At the outset, the Amended Petition is fraught with inconsistencies regarding the interference protection obligations the Gulf licensee would bear towards incumbent MDS and ITFS licensees with 35 mile PSAs.[15/] For example, it is not even clear whether: (a) PetroCom

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[14/] *See supra* note 2.

[15/] In addition, although it is not necessary to address them in detail at this time, the Amended Petition is replete with errors regarding the rules and policies adopted by the Commission's *Report and Order* in MM Docket No. 97-217. For example, PetroCom contends that its system "does not utilize 'Response Station Hubs'." *See* Amended Petition, at 17. Although it is not entirely clear, it appears that PetroCom is of the mistaken view that a response

intends for the Gulf BTA-like authorization holder to provide land-based incumbent MDS and ITFS licensees protection measured by the existing 45 dB and 0 dB desired-to-undesired ("D/U") signal strength ratios; or (b) PetroCom intends for the Gulf auction winner to submit long form applications for individual stations. The Amended Petition argues that the Gulf auction winner should "not need to file a separate long form application for each proposed MDS station (including booster stations) in its market if" the auction winner's "operations do not exceed a signal strength of -75 dBw/m$^2$ along the border between it and any land licensee."[16/] Yet, the proposed rules annexed to the Amended Petition provide that the Gulf auction winner will be required to submit and serve individual applications and that those applications will be required to demonstrate compliance with the 45 dB cochannel and 0 dB adjacent channel D/U benchmarks, regardless of the power flux density at the common service area boundary.[17/]

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station which communicates with an authorized MDS station is not communicating with a hub. That is the only logical explanation for PetroCom's proposal of a new Section 21.916 which is identical to Section 21.909 except that "MDS Station" is specified in place of "Response Station Hub." However, the Commission rejected a similar argument by Spike Technologies, Inc., and made clear in the MM Docket No. 97-217 that when a main station or booster site is used to collect signals from response stations, it is operating as a response station hub for those channels. *See MDS/ITFS Two-Way Order*, 13 FCC Rcd at 19133.

[16/] Amended Petition, at 10.

[17/] Specifically, the proposed revisions to Section 21.909(d)(3)(iv) provide that "[a]pplicants proposing a response station hub or MDS station in the Gulf of Mexico must demonstrate a desired to undesired signal ratio of at least 45 dB within 241.4 (150 miles) of any previously proposed or authorized cochannel MDS and ITFS station, booster station or registered receive site," while the proposed revisions to Section 21.909(d)(3)(v) similarly require applicants for facilities in the Gulf to demonstrate a 0 dB desired-to-undesired signal strength ratio with respect to the facilities of adjacent channel incumbents. Amended Petition, at A-13-14. Meanwhile proposed Section 21.909(d)(4)(iv) includes the requirement that "[a]pplicants proposing a response station hub or MDS station in the Gulf of Mexico must certify that the application has been served on any cochannel or adjacent channel, authorized or previously

Regardless of which alternative PetroCom actually intended, the risk of interference to land-based facilities is grave.

As is demonstrated in the accompanying Engineering Statement prepared by Hardin & Associates, Inc.,[18/] a Gulf facility that generates a -75 dBw/m² signal at the common border between its BTA-like service area and the 35 mile PSA of an incumbent MDS or ITFS station can certainly cause interference. The attached engineering study shows that such Gulf-based operations could cause significant interference across most, if not all, of the land-based system's PSA. In fact, contrary to PetroCom's unsupported claim, a Gulf-based station operating using the particular technical parameters assumed by PetroCom,would result in widespread interference to land-based receivers.[19/] When the Commission adopted the MDS auction rules, it made quite clear that auction winners would be required to provide 45 dB cochannel and 0 dB adjacent channel interference protection to the 35 mile PSAs of incumbent MDS and ITFS stations..[20/] PetroCom has provided no reason for affording less interference protection from the

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proposed, incumbent MDS station with a 56.33 km (35 miles) protected service area with center coordinates located within 241 km (150 miles) of the proposed response station hub," while proposed Section 21.909(d)(4)(v) imposes a similar requirement to serve the application for Gulf-based facilities on nearby ITFS licensees and applicants. *Id.* at A-14-15.

[18/] *See* Engineering Statement of George A. Harter, appended hereto as Attachment A.

[19/] *See* Amended Petition at n. 39.

[20/] *See Amendment of Parts 21 and 74 of the Commission's Rules With Regard to Filing Procedures in the Multipoint Distribution Service and in the Instructional Television Fixed Service,* 10 FCC Rcd 9589, 9624 (1995) [hereinafter cited as "*MDS Auction Order*"]; *Amendment of Parts 21 and 74 of the Commission's Rules With Regard to Filing Procedures in the Multipoint Distribution Service and in the Instructional Television Fixed Service,* 10 FCC Rcd 13821, 13826-27 (1995). The Commission should note that while WCA is opposed to PetroCom's proposal to exempt the Gulf auction winner alone from the submission of long-form

Gulf auction winner. Thus, its proposal to allow a Gulf BTA authorization holder to deploy facilities so long as those facilities do not yield a power flux density in excess of -75 dBw/m² at the border of the BTA should be rejected.

Even retaining the existing 45 dB cochannel and 0 dB adjacent channel interference protection benchmarks is inadequate. In fact, incumbent MDS and ITFS stations require greater protection from the Gulf auction winner than the 45 dB cochannel and 0 dB adjacent channel benchmarks in order to receive protection equivalent to that which they receive from land-based BTA winners. As is discussed in detail below starting at page 22, signal propagation anomalies in the Gulf make the existing interference protection system, which is based on pre-licensing predictions of interference, inappropriate for application to facilities in the Gulf itself. Simply put, because signals propagate in unpredictable fashion in the Gulf, predictions of interference are inherently unreliable. Although these concerns were raised in opposition to the 1996 Petition,[21/] as is discussed below, PetroCom has failed to address them adequately.

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applications, WCA sees potential merit to moving MDS and ITFS licensing to a geographic area system like that used for PCS and other services. However, WCA believes it would be inappropriate to consider such a system for the Gulf BTA holder and not for all other holders. Although PetroCom attempts to distinguish the Gulf because "there are no incumbent MDS or ITFS licensees in the Gulf," that is clearly inaccurate. *See* Amended Petition, at 9. PetroCom ignores the fact that the Gulf licensee will have an obligation to protect incumbent MDS and ITFS stations and MDS BTA holders who have protected services areas that extend into the Gulf. Unless and until the Commission is prepared to provide all MDS and ITFS licensees the benefit of a geographic licensing system, there is no reason to provide special benefits to the Gulf licensee.

[21/] *See* Wireless One Opposition, at 12-14.

2. Licensing Of MDS And ITFS Spectrum As Proposed By PetroCom Would Undermine The Reliance By The Winners Of MDS BTAs Bordering The Gulf Coast.

Just as adoption of PetroCom's proposal will fail to protect incumbent MDS and ITFS licensees with 35 mile PSAs, it will fail to protect the legitimate interests of BTA auction winners along the Gulf coast. Indeed, adoption of the rules proposed in the Amended Petition will result in harmful interference to MDS stations constructed near the Gulf coast pursuant to BTA authorizations, will effectively preclude many wireless cable systems near the Gulf from introducing interference-free two-way services, and will cause many systems near the Gulf to make modifications that will reduce service to the public in order to protect the new Gulf BTA-like service area. Fundamental fairness to those who bid and paid for BTAs bordering the Gulf of Mexico requires that the Commission reject PetroCom's proposal for the establishment of a new BTA-like area in the Gulf of Mexico for the provision of communications services to the gas and oil industry.[22/]

In effect, PetroCom is asking the Commission to reconsider the MDS auction rules after the auction has taken place. If nothing else, the timing of this request is curious. Although in 1994 the Commission solicited comments from the public as to what service areas should be utilized in auctioning MDS authorizations,[23/] PetroCom and its predecessor-in-interest, Gulf

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[22/]Again, it must be emphasized that WCA is not unalterably opposed to the licensing of MDS and ITFS spectrum in the Gulf, so long as the facilities in the Gulf are required to provide adequate interference protection to existing and planned land-based systems and so long as land-based systems are not unreasonably restricted in their system designs.

[23/]*See Amendment of Parts 21 and 74 of the Commission's Rules with Regard to Filing Procedures in the Multipoint Distribution Service and Instructional Television Fixed Service and Implementation of Section 309(j) of the Communications Act - Competitive Bidding,* 9 FCC Rcd

Coast MDS, remained silent. And, although interested parties had an opportunity to petition for reconsideration once the Commission released its June 30, 1995 *Report and Order* in MM Docket No. 94-131 and PP Docket No. 93-253 establishing 493 BTAs and BTA-like geographic areas for the MDS auction (but not establishing a Gulf of Mexico service area),[24/] PetroCom and Gulf Coast MDS again failed to speak. Only once the auction was closed and winners had purchased BTA authorizations along the Gulf coast at prices that reflect the lack of a BTA covering the Gulf of Mexico, did Gulf Coast MDS come forward. This failure to propose a Gulf of Mexico BTA earlier is certainly suspicious. PetroCom and Gulf Coast MDS both admit to being an affiliate of S&P Cellular Holding, Inc., a company that has been providing cellular telephone service in the Gulf of Mexico since before the Commission even began considering an MDS auction system. As a result, PetroCom and Gulf Coast MDS were presumably aware of the communications needs of the oil and gas industry in that region throughout the pendency of MM Docket No. 94-131 and PP Docket No. 93-253. Although WCA can only speculate, it certainly appears that Gulf Coast MDS and PetroCom intentionally withheld their proposal until after the MDS auction in order to secure some sort of strategic advantage.

Whatever PetroCom's motives, the fact remains that PetroCom is advancing its proposal after the conclusion of an auction in which WCA's members and others relied on the lack of a Gulf of Mexico BTA in agreeing to pay over $18.3 million for those BTAs that border the Gulf. As the record developed in response to the 1996 Petition made clear, in developing a bidding

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7665, 7669-71 (1994).

[24/] *See MDS Auction Order*, 10 FCC Rcd 9589.

strategy and establishing values for particular BTAs, bidders focused on two fundamental issues.[25/] First, a given BTA authorization would only be of material value if the auction winner could secure authorizations for MDS facilities in technical configurations that allowed a viable service, while at the same time protecting previously authorized facilities from interference. If channels were available in a given market, but could not be deployed in the necessary configuration without running afoul of the interference protection rules, the BTA authorization for that market would be of little value.

Thus, in establishing values in preparation for the MDS auction, bidders determined whether by securing a given BTA authorization, they could add new MDS channels in the requisite configuration, consistent with their interference-protection obligations to incumbent MDS stations, licensed or previously proposed ITFS facilities, and neighboring BTA authorization holders.[26/] Often, bidders discovered that in order for a given BTA authorization

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[25/] *See* Wireless One Opposition, at 5.

[26/] *See* 47 C.F.R. §§ 21.938-21.939. The burdens imposed upon a BTA authorization holder to prevent interference to an adjoining BTA are substantial. Under Section 21.938(a) of the Rules, neighboring BTA holders "are expected to cooperate with one another by designing their stations in a manner that protects service in adjoining BTAs and PSAs, including consideration of frequency abatement techniques such as cross polarization, frequency offset, directional antennas, antenna beam tilt, EIRP decrease, reduction of antenna height, and terrain shielding." 47 C.F.R. § 21.938(a). In addition, it is the obligation of a BTA authorization holder "to correct at its expense any condition of electromagnetic interference caused to authorized MDS service . . .." 47 C.F.R. § 21.938(c). Thus, the BTA authorization holder does not necessarily have *carte blanche* in designing its facilities *vis a vis* the facilities of its neighboring BTA authorization holder. Compounding the problem faced by BTA applicants, the Commission has reserved the right to require any MDS conditional licensee or licensee "to (a) modify the station to use cross polarization, frequency offset techniques, directional antenna, antenna beam tilt, or (b) order an equivalent isotopically radiated power decrease, a reduction in transmitting antenna height, a change in antenna location, a change in antenna radiation pattern, or a reduction in aural signal power." 47 C.F.R. § 21.939. As a result, there is

to be of any value (*i.e.* for it to yield any usable channels), they would have to secure a neighboring BTA authorization because they could not construct viable facilities in the desired BTA without exceeding the -73 dBw/m² power flux density limit at the boundary of that neighboring BTA. This was particularly true where the population center of the BTA was located in close proximity to the BTA boundary. In establishing a bidding strategy for such cases, the value of the additional channels to be realized from the auction was spread among the neighboring BTAs. To illustrate, if the bidder deemed the additional channels to be worth $1 million if they could be put to optimal use, but required two adjoining BTAs in order to license the optimal system, it would only bid up to $1 million for the two BTAs combined.

Second, bidders recognized that even if securing a given BTA authorization would permit usable MDS channels to be added, the BTA authorization would be of limited utility if a neighboring station could cause harmful interference to those additional channels.[27/] Thus, prior to the commencement of the auction, bidders considered whether available channels would suffer interference from incumbent MDS stations, previously licensed or proposed ITFS facilities, or from potential new MDS stations that the winner of a neighboring BTA authorization could propose. In the latter case, one could mitigate the problem and gain

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substantial risk associated with developing a wireless cable system and establishing a subscriber base unless it is certain that this rule will not be invoked and facility changes mandated.

[27/]For example, it is possible for a BTA authorization holder to propose a facility that meets the -73 dBW/m² power flux density at the BTA boundary and still cause actual interference to a co-channel facility. Moreover, depending upon the timing of the applications for neighboring facilities and how the Commission resolves open questions regarding the interference obligations of a BTA authorization holder to facilities proposed after it has filed its own proposal, a BTA authorization holder may be forced to accept interference from a previously-proposed facility in an adjoining BTA.

interference-free use of available channels by securing the neighboring BTA authorization. Once again, in establishing a bidding strategy for such cases, the value of the additional channels to be realized for the particular wireless cable system was spread among the two or more neighboring BTAs needed to provide interference-free service.

The Commission should not be surprised that wireless systems might need to secure authorizations for BTAs adjacent to those in which they intend to operate. Indeed, the simultaneous multiround auction system was employed by the Commission specifically to provide fairness for those who need adjoining BTA authorizations in order to secure usable facilities within one of the adjoining BTAs. In explaining its decision to employ a simultaneous multiround system for conducting the MDS BTA auctions, the Commission reasoned that:

> we believe that the BTA service authorizations to be auctioned possess a degree of interdependence. As explained in the *Notice*, "[t]here appears to be some geographic interdependence due to coordination of interference at the borders." Indeed, because we have selected a filing approach based on predetermined geographic areas, rather than a national filing window, we emphasize that authorizations for adjacent BTA service areas will be interdependent, as common ownership of such areas will reduce problems of controlling interference at the borders of the BTAs.[28/]

In developing bidding strategies, the bidders were aware of the fact that those BTAs bordering on the Gulf of Mexico were unique — they lacked a neighbor on one side. Thus, the holder of an authorization for one of these BTAs would not have to secure a second BTA in order to reap the benefits of the BTA authorization that bordered the Gulf coast and avoid the interference protection obligations that Sections 21.938 and 21.939 of the Commission's rules impose upon BTA authorization holders *vis a vis* neighboring BTAs.

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[28/] *MDS Auction Order*, 10 FCC Rcd 9589.

This was a particularly critical factor in setting the valuations and developing bidding strategies for the Gulf coast BTAs, for the population densities near the Gulf of Mexico are among the highest in the region, and the prime location for wireless communications systems in these BTAs is near the Gulf of Mexico. As a result, the existence of a neighboring BTA in the Gulf of Mexico would have made it particularly difficult to add additional channels to serve those areas absent ownership of the Gulf of Mexico BTA. As noted above, in such circumstances the general approach would have been to spread the value of the additional channels to be realized from the auction across both the desired BTA and the Gulf of Mexico BTA. However, because there was not a Gulf of Mexico BTA, bidding for the Gulf coast BTAs could reflect the full value of the additional channels. Simply put, had there been a Gulf of Mexico BTA, it is safe to assume that bidders for the BTAs on land would have placed a significantly lower value on those BTAs, for it would have been necessary to secure the Gulf of Mexico BTA in order to add channels on land in the proper configuration and without interference.[29/] However, because there was no Gulf of Mexico BTA, bidders ascribed the entire value of new channels to the BTAs bordering the Gulf coast, and bid accordingly.

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[29/]While the Commission clearly warned potential bidders about the risks of participating in the MDS auction resulting from the need to protect incumbents, the bidders were never advised of the possibility that new BTAs would be established and they would have to contend with potential interference issues from an MDS licensee located in the Gulf. *See, e.g.,* Letter from FCC Chairman Reed E. Hundt to Potential Bidder, dated September 15, 1995, MDS Bidder Information Package, at 3; letter from Roy Stewart, Chief, FCC Mass Media Bureau to Potential Bidder, dated September 15, 1995, MDS Bidder Information Package, at 5; *and* Auction Procedures, Terms and Conditions, MDS Bidder Information Package, at 21-22 (describing generally requirements to protect incumbents and risks of pending rulemakings and other proceedings). Had such interference concerns been present, bidders would have attached lower valuations to the Gulf coast BTAs, and the auction proceeds would have been diminished accordingly. *See* Wireless One Opposition, at 10-11.

This is borne out by an analysis of the auction results. Nationally, the average price per bidding unit [30/] was approximately $51.58.[31/] For 472 BTAs and BTA-like areas that did not border the Gulf of Mexico, the price per bidding unit was approximately $49.80. The high bids for the 21 BTAs bordering the Gulf of Mexico were almost doubled, averaging approximately $90.71 per bidding unit! While WCA recognizes that numerous factors determine the price ultimately paid for a given BTA, the fact that the BTAs bordering the Gulf of Mexico were more costly than others strongly suggests that bidders took into consideration the fact that the holder of these BTAs would have a greater ability to utilize available channels in the necessary configuration without interference because they would not have a neighbor along one border. That led to higher bidding for the Gulf coast BTAs, since there was no need to bid for a neighboring BTA gulfward. In other words, those who secured BTAs bordering the Gulf of Mexico have already paid the government for the benefits they realize by not having to suffer the burdens of having a neighboring BTA authorization holder.

Although these concerns were raised in opposition to the 1996 Petition,[32/] PetroCom has

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[30/]Bidding units are generally recognized as the most significant measure of the value of a MDS BTA authorization because of the encumbered nature of the service. A bidding unit represents the Commission's estimate of the value of the available spectrum in a given BTA, and was calculated as $0.02 per MHZ per unit of population after excluding those persons who would be unable to receive service over a given channel due to the interference protection rights of incumbents. The Commission should note, moreover, that even measured on a per unit of population basis, the BTAs bordering the Gulf of Mexico were significantly more costly than other BTAs. The average price for a BTA bordering the Gulf coast was approximately $1.09 per person, while the average price for other BTAs was just $0.94.

[31/]All figures are calculated prior to adjustment for bidding credits to designated entities.

[32/]*See* Wireless One Opposition, at 3-16.

ignored them. The Commission, however, cannot. Adoption of PetroCom's proposal would effectively modify the licenses of land-based facilities along the coast and would represent both an unlawful license modification and arguably an unconstitutional taking.[33/] If the rules proposed in the Amended Petition are adopted, there is no question but that land-based system operators will be subject to interference and encounter substantial problems in deploying two-way communications systems. As discussed in the Hardin Engineering Statement,[34/] Gulf facilities maintaining a -75 dBw/m$^2$ PFD signal strength at the boundary of the Gulf BTA can be expected to increase the received signal level well more than 1 dB above the noise floor, potentially crippling the ability of hubs to receive communications from response stations. And, if land-based BTA holders are required pursuant to Sections 21.938 and 21.939 of the Rules to modify their facilities to protect Gulf facilities, there is no telling how badly service to the public on land will deteriorate.

Moreover, the Commission cannot ignore the serious adverse consequences that wireless

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[33/]Section 316 of the Communications Act requires that the Commission conduct formal hearing procedures prior to license modification, and places both the burden of introducing evidence and the burden of proof *on the Commission* to demonstrate that modification is in the public interest. 47 U.S.C. § 316. In addition, auction winners' license payments and systems expenditures vested certain contract-based interests and investment-backed expectations which the Commission cannot upset without compensation. *See United States v. Winstar Corp.*, 116 S. Ct. 2432 (1996) (holding government contractually liable where government afforded regulated entities particular regulatory treatment in exchange for valuable consideration); *Lucas v. South Carolina Coastal Council,* 505 U.S. 1003, 1027 (1992) (regulation eliminating the entire value of a property interest is *per se* taking unless the original grant incorporated the limitation at issue); *see also Conoco Inc. v. United* States, 35 Fed. Cl. 309, 334 (1996) (material breach of Outer Continental Shelf Lease occurs where government unilaterally changes the fundamental terms of the lease); *Sun Oil Corp. v. United States*, 572 F. 2d 786, 816-17 (Ct. Cl. 1978) (breach of contract regarding oil exploration on Outer Continental Shelf).

[34/]*See* Engineering Statement of George A. Harter, appended hereto as Attachment A.

cable systems along the Gulf of Mexico will suffer if, as PetroCom proposes, the Commission auctions a Gulf of Mexico BTA-like service area without significantly altering its normal interference protection rules to reflect the unique propagation characteristics of the Gulf. While PetroCom suggests otherwise,[35/] the Commission has previously recognized, propagation conditions in the Gulf of Mexico in the 2 GHz band are anything but normal. To the contrary, the Commission has acknowledged that:

> certain meteorological conditions can cause unusual propagation phenomena, such as superrefraction and ducting, that can lead to much stronger radio signals beyond the radio horizon than would normally be expected. These phenomena occur for small percentages of time over most of the U.S. and for very significant percentages of time over some areas usually associated with large bodies of water and are especially prevalent in the Southern California coastal area and around the Gulf Coast. Recent long-term measurements by the Office of Science and Technology on VHF/UHF paths in Southern California showed free space fields well beyond the radio horizon for significant periods of time during some seasons of the year. These phenomena are more prevalent at microwave frequencies than at VHF and UHF and can be expected to result in interfering signal levels in the 2100-2600 MHZ band under certain circumstances.[36/]

Moreover, experience has shown that these unusual propagation characteristics are impossible to accurately model, making it impossible to accurately predict potential interference where MDS and ITFS signals are transmitted over large bodies of water.

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[35/] *See* Amended Petition at 15-16.

[36/] *In the Matter of Amendments of Parts 21, 74 and 94 of the Commission's Rules and Regulations with Regard to the Technical Requirements Applicable to the Multipoint Distribution Service, the Instructional Television Fixed Service and the Private Operational-Fixed Microwave Service (OFS), Amendment of Part 21 of the Commission's Rules to Make the Prior Coordination Requirement of Subsection 21.100(d) Applicable to the Multipoint Distribution Service, and Amendment of Part 21 of the Commission's Rules to Define the Interference Studies Required by Subsection 21.902(c) and to Establish Minimum Criteria for the Acceptance of Newly Filed Applications Proposing the Construction of New MDS Stations with the Amendment of Existing MDS Authorizations,* 98 F.C.C. 2d 68, 98 (1984).

Despite its familiarity with the difficult operating conditions in the Gulf of Mexico, and PetroCom's recent representation to the Commission that "[t]he Gulf of Mexico provides an unstable environment for RF propagation,"[37/] PetroCom does not propose any material alterations in the Commission's general rules governing the interference protection rights and obligations of BTA authorization holders. To the contrary, PetroCom merely attempts to downplay the extent of the problem and contends, albeit without any technical analysis, that the problem "can be accommodated by the interference rules adopted in the Two-Way MDS Proceeding and proposed here."[38/] Yet, application of the general rules to a Gulf of Mexico BTA would have serious adverse consequences for incumbent MDS licensees, grandfathered ITFS licensees operating on MDS channels, and the holders of BTA authorizations along the Gulf coast. In light of these propagation phenomena, difficult, if not insurmountable, technical difficulties will be faced not just by those that propose to operate in the Gulf of Mexico, but also those that operate on land near the Gulf coast and must protect operations in the Gulf of Mexico.

As noted *supra* at note 26, the Commission has imposed significant obligations upon BTA authorization holders to avoid interference to their neighbors. Quite frankly, given the long distances 2 GHz signals travel over water and the unpredictability of those signals, WCA is at a loss to explain how PetroCom intends to develop a system that will operate in the Gulf of Mexico without causing interference to the protected service area of adjoining BTAs, incumbent MDS stations and ITFS licensees. WCA takes some solace in the fact that Section 21.938(c)

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[37/]Developmental Report of PetroCom License Corporation, at 3 (filed April 27, 1999).

[38/]Amended Petition, at 15.